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ABSTRACT

A study of Montana's vocational education facilities, course offerings, instructional practices, and faculty demographics was conducted in the fall of 1988. Data collection was accomplished through a survey instrument mailed to a random sample of vocational-technical teachers stratified on kind of school (secondary and postsecondary) and size of secondary school in which they taught. The return rate for the 383 instruments mailed was 36 percent. Based on the results, the following recommendations were made: (1) a similar study should be conducted to reject or confirm the findings of this one; (2) because only 33 percent of the vocational teachers hold master's degrees, advanced degree programs should be made more available to teachers; (3) schools should consider expanding their adult education offerings, because only 37 percent of the respondents said they were providing that service; (4) to become more cost-efficient, smaller schools should share their vocational laboratories; (5) schools should combine classes to serve students at different program levels simultaneously; (6) because the timeliness and relevancy of them was marked deficient by approximately one-third of respondents, instructional materials should be updated; and (7) team teaching in which individual teachers specialize in order to keep up with changing technology should be used. (CML)

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A Needs Assessment of Vocational Technical Teachers in Montana 1988-89

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FOREWORD

The Center for Vocational Education Research, Curriculum and Personnel Development, in an effort to compile data regarding the operation of vocational-technical education programs in the state, did a needs assessment of the teachers during the fall of 1988. The teachers were asked to respond to several questions pertaining to their program operation as well as some related to their personal educational attainment, teaching tenure and other demographics.

The results of the survey are reported in this document and may prove to be helpful in planning future vocational technical offerings in the state.

The Center is appreciative of the efforts of Allan Culp and Monica Skrivseth in compiling this report.

A.W. "Gus" Korb, Director

OVERVIEW

Several major developments have occurred during the last two years (1986-88) which have had direct impact on Montana's secondary and postsecondary vocational education. These include reduced financial support from the state level, legislative impact on districts to adequately fund programs, a change in governance models for postsecondary vocational education, changing university admissions policies and college preparatory high school graduation requirements.

Vocational education programs were offered in 177 Montana high schools during the 1987-88 school year. Programs were offered in the following areas: agriculture, business, marketing, home economics, industrial arts, technology education, trade and industrial education and broadcasting. Total enrollment for these programs (1987-88) consisted of 41,746 students.

Montana's public vocational technical education delivery system includes five vocational-technical centers, three community colleges, and one unit of the university system which offers vocational programs at less than the bacclaureate level.

The Montana Council on Vocational Education, in its "Biennial Evaluation of Vocational and Technical Education 1986-1988" report, stated that vocational education in Montana for secondary schools and vocational-technical centers had historically been governed by the Superintendent of Public Instruction.

However, the 50th Montana Legislature (1987), by passage of House Bill 39, transferred the governance of Montana's vocational technical centers to the Board of Regents of Higher Education. As specified by law, the Board of Regents contracted with the Office of Public Instruction for administration and supervision of K-12 vocational programs, including services and activities allowed by the 1984 Carl D. Perkins Vocational Education Act.

Earlier, the Montana Legislature, through the 1981 passage of House Bill 618, provided funding for Montana's secondary vocational education programs to pay a portion of those costs that exceeded the cost of typical classrooms (i.e. English, Social Studies, etc.) These

state vocational education funds were used to fund major equipment and minor equipment purchases, equipment repairs, supplies, vocational student organizational advisory stipends, extended contracts and instructional travel.

Between fiscal year 1980 and fiscal year 1986, the total cost of secondary vocational education increased from $8,881,813 to $16,036,858. However, the State contribution, which had been $750,000 (approximately 30% of additional costs) per year during 1980-86, dropped to $500,000 in fiscal year 1986 and to $400,000 in fiscal year 1987.

The total budget for vo-tech centers for fiscal year 1987 amounted to $11,236,315 and $10,136,240 for fiscal year 1988. House Bill 39 provided for continuation of a county (mandatory) levy for operation of the vocational-technical centers system, but did not contain provisions for the voted levy portion of the center budgets after June 30, 1989. Senate Bill 287, which would have imposed a 2-mill statewide levy for support of vocational technical education programs at vocational-technical centers and community colleges, was not approved by the 51st Montana Legislature.

In addition to major funding and governance changes, vocational education in Montana is now in competition for the limited number of hours in a student's school day. According to the Second Interim Report on the "National Assessment of Vocational Education", a study done by the U.S. Department of Education, 1988, "increased (high school) core requirements are limiting the amount of time available for enrollment in vocational programs, that is, the sequence of courses that prepare for specific careers."

The future of the vocational education teachers' job market is increasingly unstable. It is estimated that the number of job opportunities for vocational education teachers in Montana will not increase substantially over the next decade. According to the 1988 "Workforce to the Year 2000: Opportunities and Challenges," published by the Montana Department of Labor and Industry, it is anticipated that only 130 new vocational education teachers' jobs will be created to serve the needs of students by the year 2000, as compared to 190

new non-vocational education teachers' jobs, and 1,580 new elementary teachers' jobs.

The combination of these factors have directly impacted the status of vocational education in the state today. Since most vocational programs are not fully funded, teachers are forced to operate programs at less than optimal standards. The ability to purchase state-of-the-art equipment and supplies is limited. In addition, some schools must limit their vocational technical curriculum offerings to allow students to complete the minimum high school academic graduation course requirements.

In order to stay abreast of the needs in vocational education programs in Montana, it is necessary to periodically poll the teachers in the various vocational programs to determine their changing status and their perceived needs.

FACULTY DEMOGRAPHIC STUDY

Purpose of the Study

A Faculty Needs Assessment was conducted by the Center for Vocational Education in the fall of 1988 to gather data from Montana educators who were directly involved in teaching vocational education courses.

The purpose of the study was to obtain information from vocational-technical teachers relevant to their specific programs, as well as other demographic data which may be helpful for future planning and analysis of vocational-technical offerings in the state.

The survey was designed to gather data relative to vocational facilities, course offerings, instructional practices, and faculty demographics to provide an informational support base in developing, enhancing, and promoting vocational education in the state.

The study was intended to be the first in a series of surveys to analyze the changing demographics of the vocational-technical faculty and the changing instructional and budgetary trends in vocational education.

Method of Study

A survey instrument was developed to obtain the desired information from vocational teachers across the state. The instrument was field tested by sending a preliminary cover letter (Appendix A) and the survey instrument to 15 teachers who represented a cross-section of the teachers from the various-sized schools in Montana.

The survey instrument was then revised based on suggestions from field test respondents and from the actual responses themselves. The revised instrument (Appendix B) was developed and distributed.

The following narrative, tables and graphs summarize and report the tabulated results of the survey. A brief discussion of the responses for each question is also given and comparisons between responses from different-sized schools are used where appropriate.

Population Sampling

The sample for the study was selected from all high schools, vocational technical centers and public community colleges in the state. The 167 high schools in the state were divided into four classifications based upon student population, as determined by the Montana High School Association. They include Class AA, the largest; Class A, Class B, and Class C, the smallest. The five vocational-technical centers and three community colleges were grouped together in one general classification as post-secondary institutions. Hence, the survey dealt with five distinct classifications in its analyses.

From the total number of schools, a random selection of 30 percent of each school size classification was used for the survey. To avoid duplication of reported material, one teacher from each vocational service program area was asked to respond to the survey in each school sampled. Subject area was not differentiated in the random sampling nor in the overall results.

Survey Response

A total of 383 surveys were sent to Montana vocational-technical educators with 138 surveys returned, for a 36 percent overall response rate. The distribution and responses to the survey are shown in Table 1 and are further depicted in graph form on Graph A.

Table I

Number of Schools in Montana

VT-CC	AA	A	B	C		Total
8	13	21	41	92	=	191

30% Sampling of Schools

VT-CC	AA	A	B	C		Total
3	4	7	13	34	=	61

Number of Teachers Surveyed

VT-CC	AA	A	B	C		Total
83	49	43	64	144	=	383

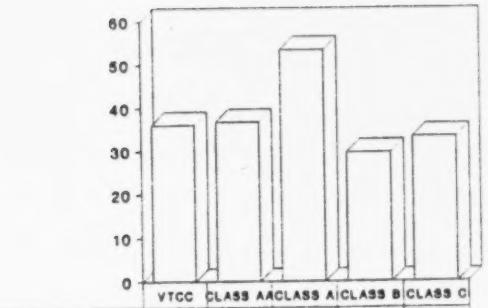
Number of Responses

VT-CC	AA	A	B	C		Total
30 (36%)	18 (36%)	23 (53%)	19 (30%)	48 (33%)	=	138 Average = 36%

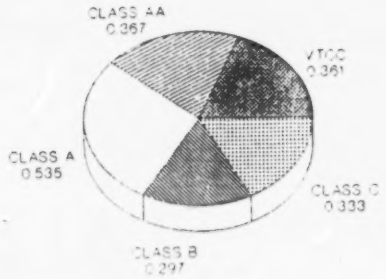
As shown in the table, the response to the survey was 53 percent for Class A schools, while Class AA schools and post-secondary schools each had 36 percent. Class C and Class B schools were less responsive at 33 and 30 percent respectively.

GRAPH 'A'

PERCENTAGE OF SURVEY RESPONSES BY SCHOOL SIZE



	VTCC	CLASS AA	CLASS A	CLASS B	CLASS C
NUMBER MAILED	83	49	43	64	144
NUMBER RETURNED	30	18	23	19	48
PERCENT RESPONSE	36.145	36.735	53.488	29.688	33.333



SURVEY RESULTS

Teacher Profile:

Educational Degree Status

Teachers from all five school size classifications were asked to state their highest level of educational achievement. This question

was created to determine if educational status varied significantly among teachers employed in the smaller and larger high schools and post-secondary schools.

Of the total survey responses (Graph B), it was found that only a small percentage of teachers in Class C and Class B schools held master's degrees (20%-21%), while the number holding master's degrees increased for Class A and Class AA schools (39%-44%). As might be assumed, post-secondary teachers held a greater number of master's degrees (54%) than high school vocational teachers. Only 33% of all the teachers held master's degrees.

Conversely, the number of teachers holding bachelor's degree status in school size classifications was found to be inversely proportionate to those teachers holding master's degrees (45% for post-secondary teachers to 79% for Class C teachers).

GRAPH 'B'

TEACHER EDUCATIONAL DEGREE STATUS

	VTCC	CLASS AA	CLASS A	CLASS B	CLASS C
BACHELORS	10	10	14	15	38
MASTERS	12	8	9	4	10
TOTAL	22	18	23	19	48
% BACHELORS	45.455	55.556	60.87	78.947	79.167
% MASTERS	54.545	44.444	39.13	21.053	20.833

Average Years' Teaching Experience

The teacher survey also asked educators to provide data on the amount of teaching experience they had as well as the number of years they had taught vocational education. This question was created to ascertain how long today's vocational teachers had been in the teaching workforce and to determine if these may be a large number of retirements in the near future (Table II).

Survey responses indicated that the combined vocational teachers had been employed at their present schools an average of 8.6 years and had taught vocational education an average of 8.4 years. Only teachers in Class AA schools had a combined total average of over 10 years of vocational teaching experience at one school.

There are no measurable differences in the lengths of teaching experience between the varying sized high school and post-secondary vocational teachers.

Table II

Vocational Education Teaching Experience

	VTCC	AA	A	B	C	Average
Number of years at present school	9	10	7	9	8	8.6
Number of years teaching Vo-Ed	11	12	10	9	9	8.4

Vocational Education Adult Education Course Offerings

Because adult education program offerings may increase or add revenues to existing school funding, a potential source for revenue enhancement may be to expand the number of vocational classes offered through adult education programs. Adult programs offered during the evening may also provide a service to the students by making instruction available during times when they are most able to attend.

The survey asked teachers if they taught any vocational-technical courses through adult education.

Teachers' responses (Table III) showed that almost two-thirds (63%) of the state's vo-tech teachers do not teach any vocational courses through adult education programs. Only 37%, or about 1/3, of the total respondents indicated that they offer vocational courses to students through adult education programs. Teachers in the Class A schools most frequently (54%) taught adult education classes.

Table III

Educators Teaching Vocational Courses through Adult Education Programs By School Size

	VTCC	AA	A	B	C	Total
Yes, I do	9	5	12	8	17	51
No, I don't	21	13	10	11	31	86
Total	30	18	22	19	48	137

Classroom, Laboratory and Equipment Demographics

Classroom/Laboratory Facilities and Usage:

Facility Sharing

In order to ascertain the number of teachers who share vocational program facilities in Montana's schools and determine whether facilities were used to their maximum, respondents were asked if they shared the laboratory facilities with other teachers.

Responses were almost evenly split (Table IV). 54% of the teachers answered yes, while 46% of teachers responded negatively. Class C school teachers tend to be the sole users of their classroom and laboratory space as compared to teachers in larger schools. This is probably because the smaller schools tend to only have one teacher per vocational subject area.

Table IV

Vocational Teachers Sharing Classroom/Laboratory Space

	VTCC	AA	A	B	C	Total
Yes, I share	24	15	14	9	12	74
No, I don't share	6	3	9	10	36	64
Total	30	18	23	19	48	138

Laboratory Facility Size

Teachers were asked to identify the approximate size of the main laboratories used to teach vocational-technical programs in an effort to identify how much actual space is used for vocational laboratory instruction. It was assumed that the smaller-sized schools would have less laboratory space available because of a generally limited physical teaching facility where fewer students are enrolled in school.

Of the 127 responses, (Table V) 70% of the state's vocational teachers teach in laboratories less than 3,000 sq. ft. in area. Only 11% of the teachers responded that their schools have laboratory space in excess of 5000 sq. ft.

No Class C school teachers responding to the survey had laboratory facilities in excess of 5000 sq. ft. and only four (4) Class C school teachers responded that they had laboratory facilities over 3000 sq. ft. for vocational program instruction. As expected, the Class C schools tend to have smaller laboratory space.

Table V

Vocational-Technical Program Main Laboratory Size

	VTCC	AA	A	B	C	Total
Less than 1500 sq. ft.	10	1	5	5	29	50
1500-2999 sq.ft.	10	6	8	5	10	39
3000-4999 sq.ft.	2	6	7	5	4	24
5000-6999 sq.ft.	2	1	2	2	0	7
More than 7000 sq. ft.	4	2	0	1	0	7
Total	28	16	22	18	43	127

Classroom/Laboratory Setting Conduciveness To Learning

In addition to the information gathered concerning actual average physical size of the laboratory settings, information was needed to discern how conducive the present classroom and/or laboratory settings were to student learning. Both objective and subjective information in this area is needed to accurately describe the current state of vocational teaching facilities in the state.

87% of the total teachers responding to the survey considered that their classroom and laboratory settings to be conducive to student learning (Table VI). It was noted that 18% of the Class C teachers' responses and 23% of the VTCC post-secondary teachers' responses indicated that the classroom and/or laboratory settings were not conducive to learning.

Table VI

Classroom/Laboratory Setting Learning Conduciveness

	VTCC	AA	A	B	C	Total
Conducive to Learning	23	17	23	17	39	119
Not Conducive to Learning	7	0	0	2	9	18
Total	30	17	23	19	48	137

Average Number of Students Per Class

Since safety is usually a major factor in many vocational classes, most schools limit the vocational enrollments to provide better supervision of the students' activities. Therefore, statistical information was solicited to determine the average number of students per class in vocational courses. Teachers were also asked to report their largest and smallest class enrollments.

The average number of students enrolled per classroom ranged from six (6) students per class in Class C schools to 17 and 16 students per class, respectively, in Class AA and VTCC post-secondary schools (Table VII). The findings clearly reflect that the smaller the school, the smaller the enrollment.

Table VII

Average Number of Students Per Classroom

	VTCC	AA	A	B	C	Mean
Average #	16	17	13	12	6	12.8
Smallest class	11	13	8	7	4	8.6
Largest class	24	22	20	17	12	19.0

Equipment Repair Responsibility

Vocational teachers were asked if they were responsible for equipment repairs other than basic maintenance. It was assumed that more teachers in smaller-sized schools would probably be responsible for repairs based on the limited availability of trained repairmen in sparsely populated areas as well as the potential high cost factor involved with repairing certain types of equipment.

The yes and no answers to this survey question were almost evenly split among the combined responses (Table VIII). 54% of the teachers responded that they were not responsible for repairs on equipment and 46% said they provided repair service.

Only teachers in the Class A and Class B schools had more yes responses to this question. 63% of the teachers in Class A schools and 68% of the teachers in Class B schools answered that they were directly responsible for equipment repairs. Conversely, teachers in Class C schools, the smallest sized school systems in the state, responded that only 36% of the surveyed vocational teachers were responsible for equipment repairs.

Table VIII

Equipment Repair Responsibility

	VTCC	AA	A	B	C	Total
Teacher Responsible	11	8	14	13	17	63
Other Person Responsible	19	10	8	6	31	74
Total	20	18	22	19	48	137

Textbooks, Audio-Visual Equipment,
and Support Materials Relevance and Timeliness

Current and timely instructional materials, texts and equipment are particularly important for vocational teachers because of the rapid technological change and advancement in society and the workplace. Consequently, vocational teachers were asked to assess the current relevancy of the textbooks, audio-visual equipment and other support materials used in each of their vocational courses.

Most respondents (70%) rated their texts, equipment and support materials as up to date, while 30% of the teachers indicated that these materials were in need of updating (Table IX).

31% of the Class C school teachers, 47% of the Class B school teachers, and 33% of the VTCC post-secondary teachers did not feel that their programs had the necessary up-to-date texts, audio-visual equipment and support materials necessary for each of their vocational courses.

Table IX

Textbook, Audio-Visual Equipment, Support Material Relevance and Timeliness

	VTCC	AA	A	B	C	Total
Up-to-date	20	15	18	10	33	96
Not up-to-date	10	3	5	9	15	42
Total	30	18	23	19	48	138

Montana State Agency Vocational Material Usage

Because many Montana state agencies offer vocational materials to teachers for instructional assistance at no charge or for a small fee, the survey asked teachers if they utilized any materials that are made available from these state agencies.

The total responses were almost evenly split between yes and no answers (Table X). 57% of the combined teachers responded that they did utilize materials made available through state agencies, while 43% responded they did not use state agency-supplied vocational materials.

A high rate, 80% of the teachers from Class B schools responded that they utilized materials that were available from Montana's state agencies.

Table X

State Agency Vocational Materials Usage

	VTCC	AA	A	B	C	Total
Materials Used	16	8	13	12	27	76
Materials Not Used	14	10	9	3	21	57
Total	30	18	22	15	48	133

Teacher Aide/Team Teaching Usage

Team teaching and the use of teacher's aides are two instructional practices which might assist the schools in staying abreast of technological changes by specializing in specific topics. Teachers were surveyed to find out if they use either of these instructional practices.

Survey results (Table XI) showed that only 18% of the teachers responding had a teacher's aide and/or practiced any type of team teaching. Of these teachers, only 2% of the VTCC post-secondary teachers had a teacher's aide and/or practiced any type of team teaching.

Table XI

Teacher Aide/Team Teaching Usage

	VTCC	AA	A	B	C	Total
Yes, I do	6	8	4	3	4	25
No, I don't	24	10	19	16	44	113
Total	30	18	23	19	48	138

Administrative/Community Support

The success of many programs can often be traced to the apparent support given to the program by school administrators and/or the community. Therefore, respondents were asked if they felt the vocational-technical education programs in their schools had the support of the schools' administration and community.

Almost all (95%) of the teachers surveyed (Table XII) indicated that there was a high level of support for vocational education programs by both the school administration and the community.

Table XII

Administrative/Community Support

	VTCC	AA	A	B	C	Total
Yes	28	16	23	17	45	129
No	2	1	0	1	3	7
Total	30	17	23	18	48	136

VOCATIONAL PROGRAM SCOPE

Program Intent:

Information on vocational education programs' intent was solicited to determine whether the programs were, in fact, vocational in nature rather than introductory in nature.

Teachers were asked if the intent of their programs was introductory or general in nature to serve students without career objectives in mind; or vocational in nature, to serve students with specific career objectives in mind.

Responses from the Class C school teachers (Table XIII) indicating "general programs" outnumbered all other responses from the other school sizes. This is probably due to mixed responses by vocational teachers who indicated that courses were both introductory and vocational in nature.

Class B, Class A, and Class AA teachers responded that over half of their programs were vocational in nature (53%-69%). And, postsecondary teachers (VTCC) answered that 90% of their classes were career-oriented and vocational in nature, rather than introductory. The combined averages of all vocational programs throughout the schools indicate that over 50% of the programs are vocational, rather than introductory, in nature.

Table XIII

Vocational Program Intent

	VTCC	AA	A	B	C	Total
Introductory or general programs	3	7	7	9	34	60
Vocational programs	27	11	16	10	23	66
Total	30	18	23	19	59	123

Program Matriculation:

Vocational teachers from schools of all sizes were also asked to identify the matriculation periods of their vocational education programs. This question was created to determine the length and duration of programs that students must finish to fully complete vocational programs.

Teachers' responses were based on identifying programs that lasted one (1) semester/year (or less) to vocational programs that last four (4) years.

According to the survey responses, (Table XIV), only 18% of the vocational programs offered in Montana schools are one year or less in length. Over half of all vocational programs offered (61%) are identified as three or four years in length. This percentage represents the total responses of all schools - secondary and postsecondary.

Over 75% of the postsecondary teachers' responses indicated that vocational programs in community colleges and vo-techs are two years in length, while less than 7% of the vocational programs could be defined as 4-year programs requiring student transfer to baccalaureate institutions.

Table XIV

Vocational Program Matriculation Length

	VTCC	AA	A	B	C	Total
4 year Program	2	5	14	14	22	57
3 year Program	0	4	2	5	13	24
2 year Program	22	6	4	0	2	34
1 year or less	5	2	3	0	8	18
Total	29	17	23	19	45	133

Teachers' Class Load/Daily Instructional Time:

In order to identify the amount of time teachers spend instructing vocational classes in Montana, the survey asked teachers to indicate the number of classes they taught each day and the hourly length of the vocational classes. This question was developed to determine how much time vocational educators spend in the classroom as well as how many courses the teachers instructed on a daily basis.

Over half (55%) of the surveyed vocational teachers (Table XV) indicated that they teach at least five (5) classes per day, with 37% of those respondents teaching six (6) classes per day.

17% of the survey respondents indicated that they teach four (4) classes per day and only 4% of the teachers surveyed indicated that they taught only one class per day.

The survey results showed that over half of the responding Class AA teachers teach only two classes per day and one-third of the postsecondary teachers (VTCC) teach only three classes per day. It is assumed that the lower number of classes taught per instructor in both the Class AA and VTCC schools indicates that these class periods are longer in duration.

The range of class period length is not dramatically different for vocational teachers in the state's various sized schools. 73% or 101 teachers indicated that their classes were one hour in length (Table XVI). However, over two-thirds (66%) of the VTCC teachers responded that their classes were in excess of one hour in length. Class AA teachers' responses were equally split between one-hour class periods and class periods of more than one hour.

Table XV

Number of Courses Taught Per Day

	VTCC	AA	A	B	C	Total
1 class/per day	5	0	0	0	0	5
2 classes/day	8	10	0	0	1	19
3 classes/day	13	4	1	1	3	22
4 classes/day	0	1	4	3	4	12
5 classes/day	2	2	4	5	4	17
6 classes/day	2	1	13	10	22	48
7 classes/day	0	0	1	0	5	6
Total	30	18	23	19	39	129

Class Period Length

	VTCC	AA	A	B	C	Total
One Hour	10	9	23	19	40	101
1-2 Hours	13	4	0	0	3	20
2-3 Hours	1	3	0	0	4	8
More than 3 Hrs.	6	2	0	0	1	9
Total	30	18	23	19	48	138

SUPPLIES AND EQUIPMENT EXPENDITURES

Estimated Yearly Supply Costs

The survey questionnaire asked teachers to identify the estimated yearly cost of supplies used in their vocational programs.

57% of the teachers who responded to the survey indicated that over $750 was spent yearly to purchase supplies for their vocational programs. 25% of the respondents indicated that $501-$750 worth of supplies were purchased yearly. Only 18% of the teachers surveyed indicated that yearly supply purchases totaled less than $500 (Table XVI).

Table XVI

Estimated Yearly Supply Costs

	VTCC	AA	A	B	C	Total
$1-$200	1	0	0	0	1	2
$201-$500	5	0	2	4	10	21
$501-$750	5	0	4	5	18	32
More than $750	13	18	12	10	19	72
Total	24	18	18	19	48	127

Vocational Education Equipment Costs

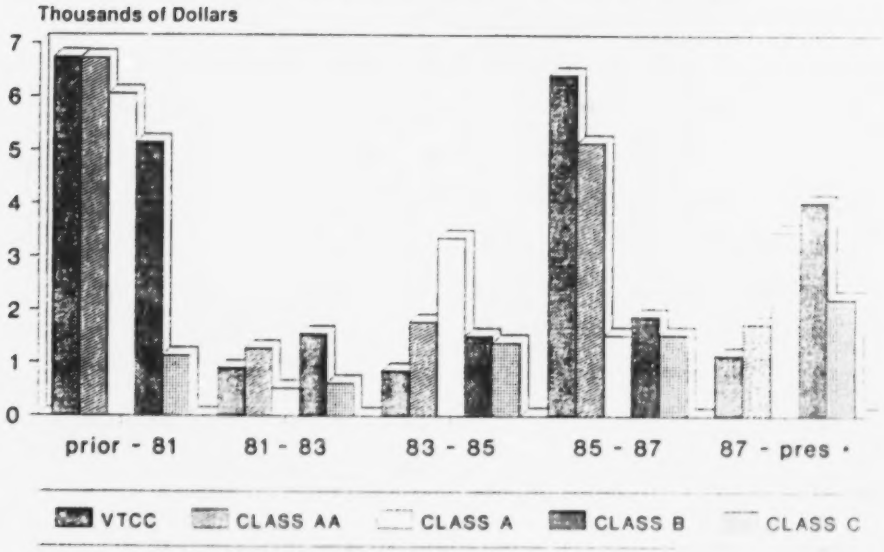
Vocational teachers were asked to list up to five (5) of the major or most expensive pieces of equipment that were used in their vocational classes. They were asked the purchase dates of this equipment and the cost of the equipment to determine the total value of the five major equipment purchases for schools of all sizes.

Based on the collective average responses, the survey hoped to determine if there were major differences in the amounts of equipment purchases between differently-sized schools and if there were large differences in the amounts of money expended on equipment purchases between the two-year legislative sessions which determine the level of school funding.

For tabulation purposes, the purchase dates were categorized into 2-year increments following the standard state's biennium funding periods. Graphs C and D depict the results of this question based on the teacher's best estimate responses.

GRAPH 'C'

COMPARISON OF AVERAGE MAJOR EQUIPMENT COSTS AND SCHOOL SIZE+ AND YEAR

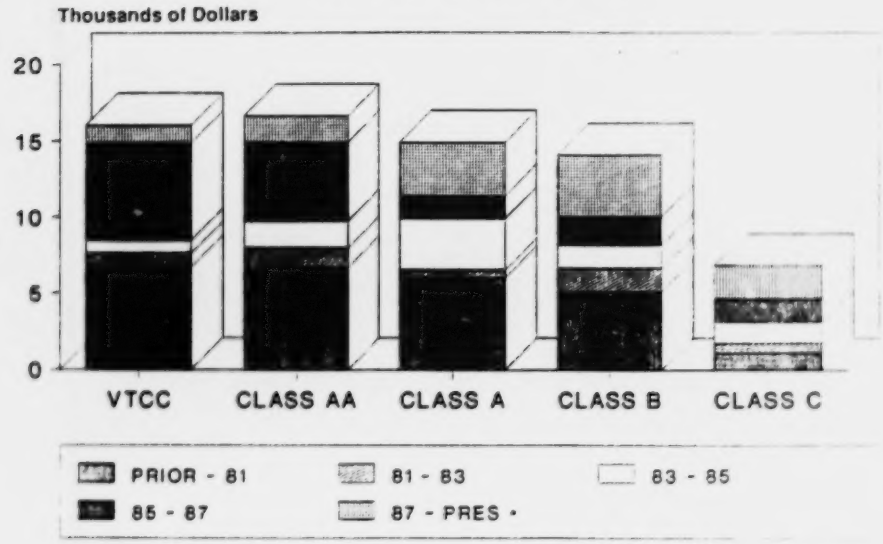


+These figures represent the average purchase costs for up to five (5) pieces of major equipment.

*Survey results were based on November 1988 figures, which may reflect only a partial biennium's purchases.

GRAPH 'D"

AVERAGE MAJOR EQUIPMENT COSTS BY SCHOOL SIZE+



+These figures represent the average purchase costs for up to five (5) pieces of major equipment.

* Survey results were based on November 1988 figures, which may reflect only a partial biennium's purchases

Graph C shows a comparison of the cost of the five (5) major or most expensive pieces of equipment in use in each of the programs. While the last biennium ('87-present) does not reflect the same two-year timeframe (since the survey was conducted in October 1988), the purchase pattern shows that the smaller schools (i.e. A, B and C Class) appear to have purchased more of the expensive pieces of equipment in the past biennium.

The VTCC and Class AA schools show that the '85-87 biennium and the years prior to 1981 were the times when they were able to purchase most of their major pieces of equipment. Graph D depicts the relative amounts of money expended for the major pieces of equipment by school size. As might be expected, the Class C schools' aggregate purchases were less than the larger schools and postsecondary vocational schools.

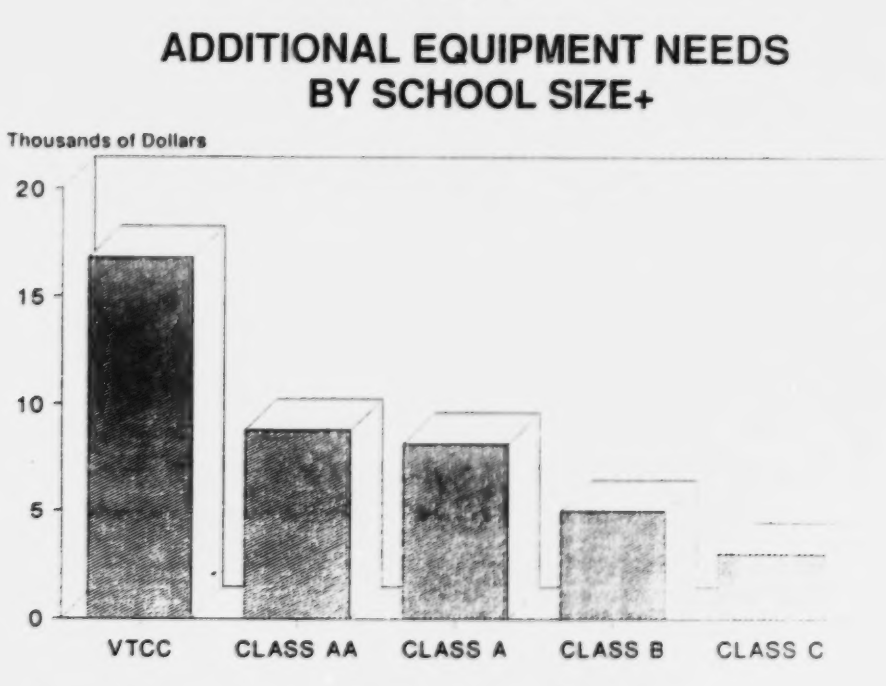
Additional Vocational Equipment Needs:

In order to ascertain the future vocational equipment needs and wants of Montana's vocational teachers, the survey asked them to identify up to three (3) additional pieces of equipment that would benefit their vocational programs, but had not been purchased thus far because of lack of funding or availability of space.

The survey responses (Graph E) showed that teachers from Class C schools desired the least expensive types of additional equipment purchases and that post-secondary teachers desired over five times more expensive additional equipment purchases. The average costs of desired/needed equipment for vocational teachers ranged from $2992 for an additional three (3) pieces of equipment for Class C vocational programs to $16,805 for an additional three (3) pieces of equipment for post-secondary (VTCC) vocational programs.

It is evident that a large variation between the time of purchases and the amount of purchases exists between differently-sized schools. The survey indicates that equipment funding seems to be an independent factor among schools that is contingent upon individual funding levels and sources.

GRAPH 'E'



+Responses based on identifying up to three (3) pieces of equipment needed to benefit programs that have not been purchased because of lack of funding or availability of space.

SUMMARY AND RECOMMENDATIONS

Based on the results of this survey and relevant information provided by state and national educational agencies, certain insights and recommendations may be made for vocational educators and administrators in Montana.

This study identified several concerns regarding practices found in instructonal programs in vocational education at various sized schools in Montana. As a result of this survey, several recommendations may be made which would enhance the vocational programs in the state.

Recommendations:

1) Since this is the first study of this type conducted in several years, it is recommended that a similar study be done in the near future which will support or reject the findings of this survey.

2) With only 33% of vocational education teachers holding master's degrees, it is recommended that an effort be made to make advanced degree programs more available to the vocational teachers to provide them with the increased expertise to further their program objectives.

3) Schools should consider expanding their adult education offerings. Only 37% of the respondents indicated that they were currently providing this service.

4) For more cost-efficient operations, smaller schools should make a concerted effort to fully utilize their vocational laboratories through some sharing activities.

5) In some schools, the class sizes were probably too small to be cost effective. Schools should consider doing innovative scheduling where classes could be combined to serve students at different program levels simultaneously.

6) The timeliness and relevancy of the instructional materials, including textbooks, were marked as deficient by approximately one-third of the respondents. Consequently, an effort should be made to update the materials currently being used. The schools should take advantage of lending libraries, the Montana Center for Vocational

Education, the National Network for Curriculum Coordination in Vocational Technical Education, and other resources which can may provide the appropriate up-to-date materials at a relatively inexpensive cost.

7) With many changes occurring in most technologies, it is becoming virtually impossible to stay abreast of technological change. By using team-teaching or teacher's aide instructional practices, instructors may be able to specialize in a particular area of the technology and thereby stay better informed of the changing demand for new skill and knowledge acquisition.

Very few respondents indicated that they used such instructional practices. It is recommended that programs with two or more instructors strongly consider adopting a team-teaching instructional practice.

APPENDIX A

the CENTER for VOCATIONAL EDUCATION
Research, Curriculum
and Personnel Development
located at Northern Montana College, Havre, Montana 59501

Dr. Gus Korb, Director

Box 7751 • (406)265-3738

October 21, 1988

Dear Faculty Member:

The Center for Vocational Education Research, Curriculum and Personnel Development is in the process of gathering information from faculty members throughout the state who are directly involved in teaching Vocational-Technical education. The purpose of the survey is to establish a data bank which can be accessed to generate information regarding the status of Vocational Education facilities, course offerings, and faculty demographics in Montana.

Your input as a teacher and a professional in vocational education is very important to the study since we need the information relative to all programs.

We are asking your cooperation in completing the enclosed questionnaire and mailing it in the enclosed pre-addressed, stamped envelope by November 4, 1988.

Thank you very much for your assistance. Please be assured that your responses will be treated confidentially.

Sincerely,

Gus Korb

Gus Korb
Director, Center for Vocational
Education Research, Curriculum
Personnel Development

mc:VT29/1

Enclosure

The Center for Vocational Education Research, Curriculum and Personnel Development is funded through the federal Carl D. Perkins Vocational Education Act. The Center serves the Montana Board of Regents of Higher Education, the Department of Vocational Education Services of the Office of Public Instruction, and secondary and post secondary vocational education providers in Montana. We are an affirmative action, Equal Opportunity employer.

APPENDIX B

TEACHER PROFILE

Please complete the following personal data.

Name: _____

School Name: _____

School Address: _____ School Phone # _____

Please state highest level of educational achievement: _____

Major: _____ Minor: _____ Other: _____

Years work experience (other than teaching): _____

Number of years at present school: _____ Number of years teaching Vocational Education: _____

Vocational-Technical courses you now teach: _____

_____

Do you teach any Vocational-Technical courses through adult education?
Yes _____ No _____

CLASSROOM, LABORATORY AND EQUIPMENT

Please answer the following questions as they pertain to your classroom, laboratory or equipment by marking the appropriate response.

1. Do you share the classroom or the laboratory or both with another teacher?
   Yes _____ No _____ At the same time? Yes _____ No _____
2. What is the approximate size of the main laboratory, as it pertains to the Vocational-Technical program in which you teach.

   _____ a. under 1,500 sq. ft.
   _____ b. 1,500-2,999 sq. ft.
   _____ c. 3,000-4,999 sq. ft.
   _____ d. 5,000-6,999 sq. ft.
   _____ e. Over 7,000 sq. ft.
3. Are the classroom and laboratory settings conducive to learning for the Vocational area you teach? Yes _____ No _____
   If no, please state the reasons: _____
   _____
4. What is the average number of students in your classes? _____
   Largest class of students: _____ Smallest class of students: _____
5. Other than basic maintenance, are you responsible for repairs on the equipment? Yes _____ No _____ If no, please explain how it is accomplished:
   _____
   _____

*In reference to items #6, #7 & #8 below, please combine inventory efforts with other vocational teachers in the program area who utilize the same equipment so it is not reported more that once.

6. List up to five (5) of the most expensive or major pieces of equipment used in your vocational classes. Also, to the best of your knowledge, state date of purchase, cost, frequency of use, estimated replacement cost. (Do not count the same type of item more than once, such as computers or typewriters, see example below.)

Equipment Item	Number of Each	Purchase Date	Cost	Frequency of use	Estimated Replacement Cost
(table saw)	(2)	(12/78)	($250)	(Daily)	($950)
1.					
2.					
3.					
4.					
5.					

7. List up to three (3) items of equipment you feel would benefit your program which you have been unable to purchase due to lack of funds or availability of space. Also, list an estimated cost, frequency of use and what class(es) in which it could be used. (See example below.)

Equipment Item	Cost	Frequency of Use	Class
(Brake lath)	($2300)	(Weekly)	(Automechanics II)
1.			
2.			
3.			

8. Please circle estimated yearly cost of supplies used in your program:

a. $1 - $200
b. $201 - $500
c. $501 - $750
d. Over $750

9. Are your textbooks, audio-visual equipment and other support materials up to date in each of the vocational courses you teach?
Yes _____ No _____ If no, briefly explain: _____

10. Do you utilize materials that are available from Montana state agencies?
Yes _____ No _____ Give example: _____

11. Do you have a teacher's aide or do you practice any type of "team teaching"?
Yes _____ No _____ If yes, please describe: _____

12. Do the Vocational-Technical education programs in your school have administrative and community support? Yes _____ No _____ If no, please explain:

13. The following statements are intended to gain information regarding the scope of your program; please check all that apply. If it has any unique features, briefly describe them on the back of this page.

a) The program is designed for students to matriculate through a period of:
_____ 4 years
_____ 3 years
_____ 2 years
_____ 1 years
_____ 1 semester or less

b) The program is intended to be:

_____ Introductory or general in nature for students without career objectives in mind.

_____ Vocational in nature with most students taking it with career objectives in mind.

c) Please indicate the number of classes you teach each day which extend for the following periods of time.

_____ Up to 1 hour
_____ From 1 to 2 hours
_____ From 2 to 3 hours
_____ Over 3 hours

14. Please list ideas, projections, other comments you may have for improving Vocational-Technical education in Montana.